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CHICAGO

COLLEGE OF PHARMACY

THE SCHOOL OF PHARMACY

OF

THE UNIVERSITY OF ILLINOIS

1897-8

TIME CARD, 1897-8.

EXERCISES.	JUNIOR.			SENIOR.		
	TUESDAY.	THURSDAY.	SATURDAY.	MONDAY.	WEDNESDAY.	FRIDAY.
Recitations, 9 to 10 A. M.	Chemistry. Mr. Thorburn.	Pharmacy. Mr. Case.	Materia Medica. Mr. Day.	Materia Medica. Mr. Day.	Pharmacy. Mr. Case.	Chemistry. Mr. Thorburn.
Lectures, 10 to 11 A. M. and 11 A. M. to 12 M.	Pharmacy. Prof. Hallberg.	Chemistry. Prof. Puckner.	Chemistry. Prof. Puckner.	Chemistry. Prof. Puckner.	Chemistry. Prof. Puckner.	Pharmacy. Prof. Hallberg.
	Materia Medica. Prof. Goodman.	Materia Medica. Prof. Goodman.	Pharmacy. Prof. Hallberg.	Pharmacy. Prof. Hallberg.	Materia Medica. Prof. Goodman.	Materia Medica. Prof. Goodman.
Laboratory Instruction, 1 to 6 P. M.	1 to 5 P. M. Sections I and II. Chemistry. Prof. Puckner and Mr. Thorburn.	1 to 5 P. M. Sections III and IV. Chemistry. Prof. Puckner and Mr. Thorburn.	1 to 2 P. M. Section I. Pharmacognosy. Mr. Day and Mr. Schreiner.	1 to 6 P. M. Chemistry. Prof. Puckner and Mr. Thorburn.	1 to 3 P. M. Section 1. Microscopy. Mr. Day and Mr. Schreiner.	1 to 2 P. M. Pharmacognosy. Mr. Day and Mr. Schreiner.
	1 to 3 P. M. Section III. Microscopy. Mr. Day and Mr. Schreiner.	1 to 3 P. M. Section I. Microscopy. Mr. Day and Mr. Schreiner.	2 to 3 P. M. Section II. Pharmacognosy. Mr. Day and Mr. Schreiner.		1 to 3 P. M. Section II. Dispensing. Prof. Hallberg and Mr. Case.	
	1 to 3 P. M. Section IV. Dispensing. Prof. Hallberg and Mr. Case.	1 to 3 P. M. Section II. Dispensing. Prof. Hallberg and Mr. Case.	1 to 3 P. M. Sections III and IV. Pharmacy. Prof. Hereth.			
	3 to 5 P. M. Section III. Dispensing. Prof. Hallberg and Mr Case.	3 to 5 P. M. Section I. Dispensing. Prof. Hallberg and Mr. Case.	3 to 5 P. M. Sections I and II. Pharmacy. Prof. Hereth.		3 to 5 P. M. Section I. Dispensing. Prof. Hallberg and Mr. Case.	2 to 6 P. M. Pharmacy. Prof. Hereth.
Dispensing Laboratory opens January 4, 1898.	3 to 5 P. M. Section IV. Microscopy. Mr. Day and Mr. Schreiner.	3 to 5 P. M. Section II. Microscopy. Mr. Day and Mr. Schreiner.	3 to 4 P. M. Section III. Pharmacognosy. Mr. Day and Mr. Schreiner.		3 to 5 P. M. Section II. Microscopy. Mr. Day and Mr. Schreiner.	
			4 to 5 P. M. Section IV. Pharmacognosy. Mr. Day and Mr. Schreiner.			

THE COLLEGE BUILDING.

THIRTY-EIGHTH ANNUAL ANNOUNCEMENT.

CHICAGO

COLLEGE OF PHARMACY

THE SCHOOL OF PHARMACY

—OF—

THE UNIVERSITY OF ILLINOIS.

465-467 STATE STREET, CHICAGO.

SESSION OF 1897–8.

CHICAGO.

PUBLISHED BY THE UNIVERSITY.

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1897/98

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LOUIS IGNATIUS SCHREINER, Ph. G., Assistant in Microscopy, 465 State Street, Chicago.

SPECIAL LECTURERS FROM THE GENERAL CORPS OF INSTRUCTION OF THE UNIVERSITY.

BACTERIOLOGY.

THOMAS JONATHAN BURRILL, Ph. D., LL. D., Vice-President, Dean of the General Faculty, Professor of Botany and Horticulture.

BIOLOGY.

STEPHEN ALFRED FORBES, Ph. D., Dean of the College of Science, Professor of Zoölogy.

SANITARY WATER ANALYSIS.

ARTHUR WILLIAM PALMER, Sc. D., Professor of Chemistry.

FOOD, ITS ADULTERATION AND ITS PRESERVATION.

SAMUEL WILSON PARR, M. S., Professor of Applied Chemistry.

EMBRYOLOGY.

CHARLES ATWOOD KOFOID, Ph. D., Superintendent of the Biological Station of the University.

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HISTORICAL SKETCH.

The Chicago College of Pharmacy was founded in 1859, being the pioneer school of pharmacy in the West and the third in order of establishment in this country.

The founders of the college were the leading pharmacists of Chicago and vicinity, and in their hands the management of the institution remained until 1896, when in conformity with the unanimous wish of its members, the college was united with the State University, and became the School of Pharmacy of the University of Illinois. The school is now governed by the trustees and officers of the university, with the aid of an advisory board of pharmacists elected by the Illinois Pharmaceutical Association.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the national government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the national government scrip for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign county donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The State Legislature has from time to time appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property is $1,600,000. In 1890, by passage of a law supplementary to the act of 1862, the congress of the United States provided further appropriations, which for the present year amount to $23,000, to be increased $1,000 annually until $25,000 is reached, which sum is then to be paid yearly thereafter.

The trustees of the university are nominated in the state conventions, and are elected, together with other state officers, by vote of the citizens of Illinois.

ANNOUNCEMENT.

The thirty-eighth annual course of instruction in the Chicago College of Pharmacy—the School of Pharmacy of the University of Illinois—will begin Tuesday, October 5, 1897, at half-past two o'clock in the afternoon, with an address by President Andrew S. Draper, of the University.

The session will continue twenty-eight weeks, closing upon Thursday, April 21, 1898, on which day the graduating exercises will be held.

AIMS AND SCOPE.

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must be held responsible for the purity and strength of his preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education cannot be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for

his professional career. It is evident then, that suitable preparation for the life work of the practical pharmacist can be had only by giving due consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on the one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies farther, to qualify himself either as a teacher or a technical expert, he may avail himself of the courses of instruction offered by the College of Science of the University with the assurance that credit will be given him for work satisfactorily finished at the School of Pharmacy.

THE COLLEGE BUILDING

is advantageously located upon State street, near Polk street, close to the center of the business district of the city. Cable-car lines pass the door, the new elevated loop is within three blocks, and the principal depots not far distant, making the College easily accessible from all parts of the city and suburbs. Good board and lodging can be obtained in the vicinity of the school at reasonable rates.

The entire building is devoted to the education of pharmacists. It was designed by practical pharmacists for that purpose, and nothing which experience could suggest was overlooked at the time of its construction.

THE LECTURE HALLS

are two in number, both in amphitheatre form, well lighted and comfortably heated. The larger or these, known as Attfield Hall, has a seating capacity of three hundred and fifty. The smaller will seat half of that number.

Besides these halls the building contains three laboratories of ample size, an office and reading-room, storerooms, etc.

THE PHARMACEUTICAL AND CHEMICAL LABORATORY

is provided with work-stands for ninety-six students, and has four times this number of lock-drawers and of lock-cupboards; so that a class of three hundred and eighty-four may be divided into four sections, if necessary, and each individual have his apparatus under lock and key. Aside from the necessary kit furnished each student, the laboratory is provided with other chemical apparatus used to demonstrate the operations on a more extended scale. In connection with this room are a weighing-room, store-rooms, fume-chambers, drying-closets, etc.

Each work-stand is three feet long and is supplied with water, sink, gas, water-bath, sand-bath, percolators, stand, graduates, funnels, thermometers, specific gravity apparatus, etc.

THE DISPENSING LABORATORY

is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy.

This laboratory occupies the entire ground floor of the building proper, and contains one hundred and twenty feet of counters and shelf fixtures.

Portions of these fixtures were exhibited at the World's Fair and were especially commended.

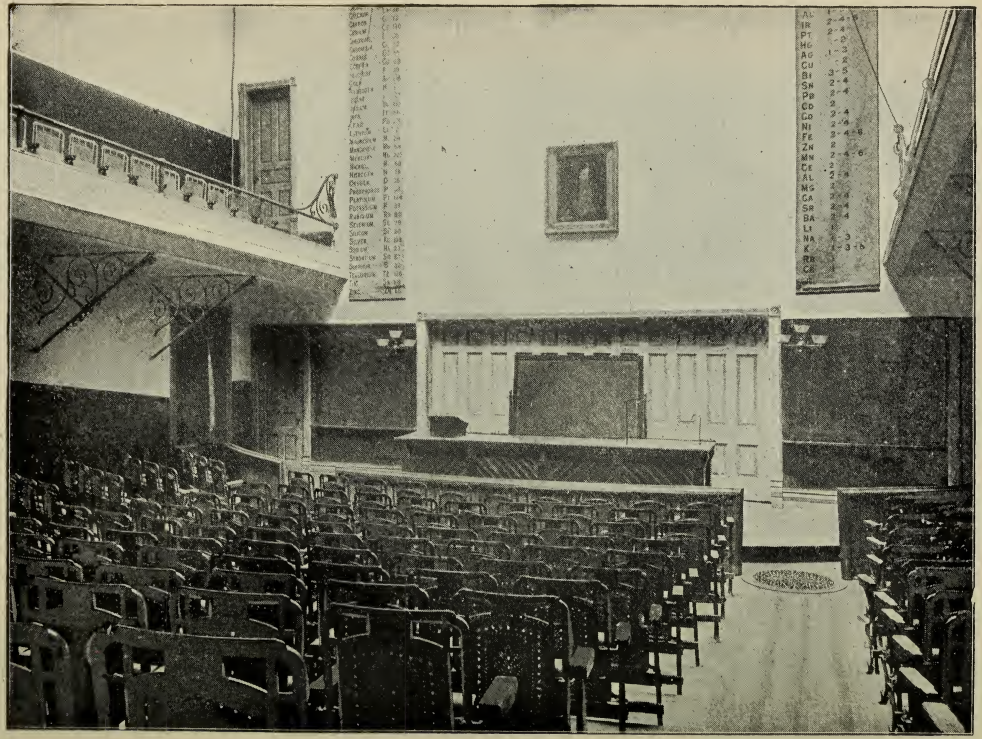
THE MICROSCOPICAL LABORATORY.

is situated upon the second floor, and is adapted for classes of forty students. A compound microscope, magnifying from seventy-five to four hundred diameters,

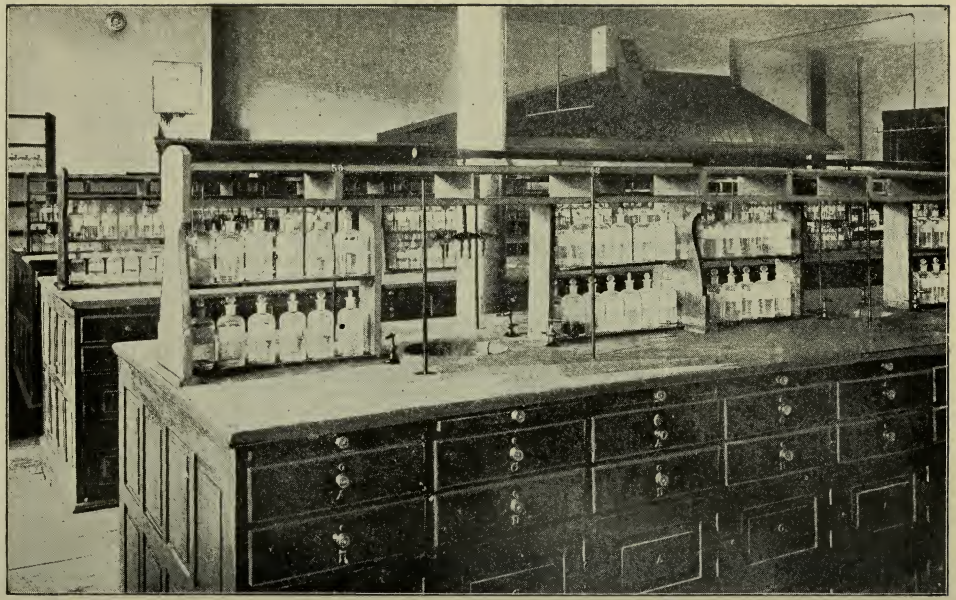
is provided for each person. The individual equipment consists of reagents and mounting media, slides, cover glasses, forceps, and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, contained in half-gallon bottles, and as many stock cans, to which the students have free access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of 553 specimens, embracing those official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and a very extensive herbarium, the latter collected by Professor Bastin and his assistants during his connection with the botanical department of this college. It numbers several thousand specimens, and a sample of every plant growing in this section of the country and many from the southern states and from the far west, may be found in this collection.

THE OFFICE,

in which all the business of the school is transacted by the Actuary and his assistants, is upon the second floor, and serves as a *Reading-room.* This room also contains the Library, which, in addition to the regular works of reference, embraces many rare books. New books are constantly being added as the various departments of science progress, and files of all the leading Pharmaceutical Journals are accessible for the student's perusal.



ATTFIELD HALL—THE LARGER AUDITORIUM.



A SECTION OF THE PHARMACEUTICAL AND CHEMICAL LABORATORY

VIEW OF DISPENSING LABORATORY.

VIEW OF THE MICROSCOPICAL LABORATORY.

REQUIREMENTS FOR ADMISSION.

Applicants for admission must be at least sixteen years of age, and must furnish evidence of their ability to prosecute the work of the course successfully.

The preliminary education should be equivalent to that required for entrance to a good high school.

Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work re-

Special Announcement.

The degree of PHARMACEUTICAL CHEMIST will be conferred by this School as heretofore, but for a more extended course, the details of which will be announced later. In conformity with the common usage of schools of pharmacy, drug-store experience will not be required for this degree.

COURSES OF INSTRUCTION.

The courses of instruction embrace:

PHARMACY—*Theoretical*, *Practical*, and *Dispensing*.

CHEMISTRY—*Inorganic*, *Organic*, and *Analytical*.

MATERIA MEDICA—Pharmacognosy and Microscopy.

BOTANY—*Structural*, *Histological*, and *Systematic*.

The system of teaching includes Lectures, Demonstrations, Recitations, Written and Oral Examinations, as well as Individual Instruction in actual work in Operative and Dispensing Pharmacy, Analytical Chemistry,

REQUIREMENTS FOR ADMISSION.

Applicants for admission must be at least sixteen years of age, and must furnish evidence of their ability to prosecute the work of the course successfully.

The preliminary education should be equivalent to that required for entrance to a good high school.

Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this College.

REQUIREMENTS FOR GRADUATION.

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at College, and must have attended two full courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this College, successfully pass the examinations, and must not have been absent more than five times during the term from either laboratory exercises or lectures in any department.

Candidates may present themselves for examination during the last year of their required experience or of their attainment of legal majority.

COURSES OF INSTRUCTION.

The courses of instruction embrace:

PHARMACY—*Theoretical*, *Practical*, and *Dispensing*.

CHEMISTRY—*Inorganic*, *Organic*, and *Analytical*.

MATERIA MEDICA—Pharmacognosy and Microscopy.

BOTANY—*Structural*, *Histological*, and *Systematic*.

The system of teaching includes Lectures, Demonstrations, Recitations, Written and Oral Examinations, as well as Individual Instruction in actual work in Operative and Dispensing Pharmacy, Analytical Chemistry,

use of the Compound Microscope, etc. Much time is devoted to laboratory practice.

PHARMACY.

1. *Introductory.*—The lectures begin with the consideration of Pharmacy in its historical, professional, and legal relations, with a thorough exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relations to physical laws and phenomena. Their applications in Pharmacy are presented in logical order and exemplified by practical demonstration in the exhibition and use of the various apparatus, utensils, and devices employed in pharmacal practice.

Heat, its sources and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids.

Solution, its phenomena, effects, and causes; related processes with their dependent separative operations; filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopœia.*—These are grouped according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses, and doses. The preparations of the National Formulary and those of the foreign pharmacopœias most commonly employed in America, are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Inorganic Pharmaceutical Chemistry.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide

when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures.

5. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmacal relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

6. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities, indicating their respective therapeutic uses and hence the pharmaceutical methods involved in their elaboration.

7. *Pharmacy of the Organic Substances and Compounds.*—These are classified according to their origin, production or derivation and treated with especial reference to their preparation and purification, tests for identity, purity, and strength, pharmaceutical preparations and medicinal uses and doses, beginning with the cellulose group, its modifications, starch, sugars, alcohols, and acids and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gumresins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The classification of crude drugs according to their

constituents, their unofficial preparations, together with the animal products and derivatives; the ferments, their function and value as pharmaceutical and medicinal agents, concludes this course.

8. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of incompatibilities as exemplified from the exercises in dispensing and bona fide prescriptions requiring especial interpretation and observation.

9. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director. Preparations typical of the official as well as unofficial classes are also made and their examination, testing, and valuation conducted so as to familiarize the student with all the requirements of pharmaceutical practice.

This course also includes the preparation of such mixtures of solids of internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters, together with the valuation of the more important alkaloidal extractive preparations, tinctures, extracts, and fluid extracts. Also the manufacture of scaled and granular salts and unofficial preparations of the National Formulary. The end of the course is devoted to the study of the assay processes of the pharmacopœia, the examination of pharmaceutical preparations and the construction of formulas for unofficial preparations.

10. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

The second part of this course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close, mixtures, typical of all ordinary and of many extraordinary prescriptions are prepared and the methods for the prevention or modification of incompatibilities, etc., considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology, and the finishing of packages are features of the exercises.

CHEMISTRY.

1. *Elementary Physics and Theoretical Chemistry.*—The course in physics is an introduction to the study of chemistry and the relationship existing between these two branches receives special attention. This course includes such consideration of the properties of matter and the manifestations of energy; heat, light, sound, and electricity, as is necessary for the comprehension

and understanding of the application of these principles in the construction and use of the analytical balance, microscope, polariscope, spectroscope, galvanic batteries, and such electrical devices as the telephone, electric call bells, etc.

2. *General and Inorganic Chemistry.*—This course considers the theories and classification of chemistry, these being elucidated by the consideration of a few typical elements and their compounds, after which the elements and their inorganic compounds are considered in detail. Concurrently with the lectures upon this subject a number of typical compounds are prepared in the laboratory and their properties and reactions studied.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

4. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which the student undertakes the quantitative estimation of the more important acids and bases. Later he determines the purity and strength of various pharmaceutical chemicals. During this course the student becomes familiar with all of the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

5. *Organic Chemistry.*—The course begins with the consideration of the general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which

are of especial importance in pharmacy and medicine. In the laboratory a number of typical organic compounds are prepared and examined.

6. *Urine Analysis.*—This course includes the detection of abnormal constituents of urine and the quantitative determination of urea, sugar, etc.

MATERIA MEDICA AND BOTANY.

1. *Materia Medica.*—This department embraces as well: Botany, Vegetable Histology, Microscopy, and Microscopic Pharmacognosy.

Instruction in Materia Medica is confined to the lecture-room and embraces recitations and examinations. Official drugs receive the greater share of attention, but unofficial articles are duly considered in their proper places. Most of the articles used in medicine, being derived from the vegetable kingdom, are treated of in their proper botanical order, that the utility of botanical study may be constantly exemplified. Each drug is considered with reference to official requirements ; concise descriptions of drug-yielding plants are given, together with truthful illustrations, habitats, commercial history, alkaloidal and other constituents, therapeutic properties, official preparations, and doses.

2. *Botany.*—No science is advancing more rapidly or becoming of greater utility than botany ; the aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and such thorough drilling is given in plant analysis that most students, at the close of the term, are able to name unknown plants. While we do not aim to gradute professional botanists, the foundation as laid in this school enables one so inclined to build to the highest degree.

3. *Vegetable Histology.*—This branch is a continuation of the study of the construction of organized material; its aim is to familiarize the student with the internal structure of plants, the individual cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

Plants best illustrating the subject are chosen from among the drug-yielding or from the garden. Students become familiar with the cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

To prosecute this study the compound microscope is employed. Each student is furnished an instrument and is thoroughly taught its use and application. Twenty-five exercises of two hours each are given to this study.

4. *Microscopy.*—This branch deals with the instrument itself and includes the study of the microscope, microscopic technique, history of its development, its relation to the telescope, the optical principles involved in its construction, the function of each part, and the laws governing refraction and reflection. In connection with this the operations of lighting, focussing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc., are taught, and the various accessories and allied optical apparatus, as the micro-polariscope, micro-spectroscope, etc., are fully illustrated and explained.

5. *Microscopic Pharmacognosy.*—This study consists of the microscopic examination of vegetable drugs as they are passed from the lecture-hall to the laboratory, and becomes at the same time microscopic; typical specimens of roots, rhizomes, stems, barks, flowers, leaves, seed, fruit, etc., are given for recognition, description and microscopic examination, each characteristic feature being duly pointed out. A written report is required upon each article examined by the student.

Twenty-five exercises of two hours each are given to this work.

OTHER COURSES OF LECTURES.

A number of lectures upon subjects closely associated with pharmacy will be given by members of the corps of instruction of the University and by other technical experts. The subjects considered will include:

Bacteriology, Embryology, Physiology, Hygiene, the Protozoa as Causes of Disease, Some Modern Theories of the Nature and Origin of Life, Water Supplies and the Sanitary Examination of Water, Preservation and Adulteration of Food, Inspection of Milk and Foods.

ADVANCED SCIENCE STUDIES AT THE UNIVERSITY.

At the University, in Urbana, opportunities are afforded for advanced study in all of the sciences involved in or associated with pharmacy.

CHEMISTRY.

Courses of instruction in chemistry, embracing all branches of chemical science, provide on the one side for those who wish to acquire the knowledge and skill necessary to the expert analyst, the pharmaceutical chemist, or the manager of a chemical industry; and on the other, for those whose aim it is to devote themselves to the purely scientific side of the subject as investigators, or as teachers of chemistry.

Twenty-two courses in chemistry are offered, aggregating more than thirty terms' work. These include inorganic, organic, technological, physical, and theoretical chemistry; qualitative and quantitative analysis; toxicology, urinalysis, plant analysis, sanitary examinations of food, air and water, pharmaceutical assaying, etc. There are ample opportunities for practice in the examination and analysis of medicines, nostrums, etc., and for special chemical investigation of pharmaceutical materials, proximate and medicinal principles of drugs, etc.

Excellent facilities are offered also for graduate work along any of the several lines above indicated. The equipment in chemicals and apparatus affords an unusual opportunity for carrying on advanced investigations.

The Chemical laboratory is a building 75x120 feet and two stories high, besides a well-lighted basement. It contains eighteen rooms in all, of which ten are laboratories and the rest comprise lecture-rooms, store-rooms, etc., etc.

BIOLOGY.

For the prosecution of Biological studies there is every opportunity. Courses in botany, bacteriology, embryology, zoology and physiology are numerous and extensive and provide unexcelled means for either general study or specialization in these branches.

The material equipment of these courses is in all respects first-class. The biological departments in Natural History Hall are provided with fourteen laboratories, eleven of which are devoted to students' use. These rooms are completely furnished and contain an ample and excellent instrumental equipment.

PREPARATION FOR MEDICAL STUDY.

The attention of those wishing a thorough and liberal preparation for the study and practice of medicine, is particularly invited to the subjects offered to such students and the courses arranged for them in the University College of Science. Those who seek classical instruction as a preliminary to medical study will find their wishes met by the courses in Latin and Greek offered in the College of Literature and Arts; and those who value thorough and systematic training in the processes and methods of modern science, and a knowledge of such subjects as underlie scientific medicine or are intimately related thereto, will find matter of special interest to them in the courses of instruction in zoology, physiology, botany, chemistry and physics offered in the chemical and natural science groups of the College of Science.

By taking advantage of the electives offered by the various departments, the student preparing for medicine may make choice from six different courses, as follows: (*a*) he may take a literary course with classical study as its principal feature; (*b*) he may specialize in chemistry, graduating as a bachelor of science in the chemical group; (*c*) he may specialize in biology (zoology, embryology, physiology and bacteriology), graduating as a bachelor of science in the natural science group; (*d*) he may take a more general biological course leading to the same degree; (*e*) he may take a three years' science course at the university, postponing graduation there until he has taken his medical course and then presenting credits for the latter to the amount of a year's work, and receiving his uni-

versity degree of bachelor of science; or (*f*) he may take a two-years' special course preparatory to medicine, not leading to a degree. The alternatives *d* and *e* of this enumeration are those especially commended to students wishing a sound and liberal preparation for modern medicine.

GENERAL INFORMATION.

TEXT BOOKS AND WORKS OF REFERENCE.

The books listed below have been selected as the best suited for students' use in connection with the courses of instruction. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those titles of which are printed in italics.

PHYSICS.—*Gage's Elements of Physics.*

CHEMISTRY.—*Puckner's Outline of Qualitative Analysis,* Remsen's Organic Chemistry, *Sadtler and Trimble's Pharmaceutical Chemistry, Schimpf's Volumetric Analysis,* Bernthsen's Organic Chemistry, Prescott and Johnson's Qualitative Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica,* Condensed Webster's Dictionary, *Gray's School and Field Botany,* Bastin's College Botany, *Gage's Microscopical Methods.*

PHARMACY.—*The Pharmacopœia, United States or National Dispensatory,* Hallberg's Lectures on Pharmacy, Remington's Practice of Pharmacy or Coblentz's Handbook of Pharmacy.

PRIZES.

TRUSTEES' MEDALS.—To the junior student in the department of Chemistry having the highest final average, provided it is ninety-six or over, will be awarded a gold medal.

To the junior student in the department of Materia Medica having the highest final average, provided it is ninety-six or over, will be awarded a gold medal.

To the junior student in the department of Pharmacy having the highest final average, provided it is ninety-six or over, will be awarded a gold medal. It is expressly stipulated that no student shall receive more than one medal.

Alumni Prize Medal.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average shall not be less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

Prize Microscope.—A member of the college offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done by him are sufficiently meritorious. Attendance, attention and general neatness will be taken into account in awarding this prize.

FEES AND EXPENSES.

No fee is required for matriculation.

Tuition Fees.—The tuition fee for each of the two courses is seventy-five dollars. The ticket secured by payment of this fee entitles the purchaser to one continuous course of lectures in all departments, and in the junior term entitles the student to four, and for half the term to five laboratory exercises each week. The senior student is entitled to one exercise each week in the chemical, microscopical, pharmacal and dispensing laboratories and one in pharmacognosy. The lectures and the laboratory practice, together with the required study, provides sufficient work to occupy all of the time of the average student. *Special students* may, by permission of the faculty, take any part of the course at a

proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

A Diploma Fee of five dollars will be required.

Laboratory Deposit.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the courses, are furnished by the college without expense to the student, but breakage or damage to apparatus must be paid for, and for this reason each student is required to deposit five dollars with the Actuary. This deposit, or such portion of it as is not required for the specified purpose, will be refunded at the close of the term.

The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars. The attendance at these recitations is optional.

The laboratory deposit and at least one-third of the tuition fee must be paid at the opening of the session. The remainder of the fees must be paid within thirty days after that date.

Board and Lodging.—Good board and lodging within walking distance of the college can be had for from $4 to $6 per week. This expense may somewhat be reduced by two or more students rooming together. The Actuary keeps a list of suitable boarding and rooming places, with their rates.

Books.—The total sum expended for books during both courses need not exceed twenty-five dollars. They may be bought as required.

SELECTION OF SEATS.

Seats in the lecture-halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled. To enroll it is necessary to fill out the matriculation blank and forward to the Actuary with a payment upon tuition of not less than five dollars.

OPPORTUNITIES FOR EMPLOYMENT.

While the lectures and laboratory exercises present to each student enough work to occupy his whole time, still the hours are so arranged as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students.

There are, among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to six dollars per week.

Persons desiring further information concerning this school should address

W. B. DAY, *Actuary,*
465 State Street, Chicago, Ill.,
or W. L. PILLSBURY, *Registrar,*
Urbana, Ill.

GRADUATES, 1897.

PHARMACEUTICAL CHEMISTS.

Alma Babb
Wilfrid James Bignold
John Elliot Boudinot
Arthur Kampman
Charles Johnson Renshaw
Luba Julia Robin
Charles Walter Winne

GRADUATES IN PHARMACY.

Allen, Eugene Daniel
Balensiefer, Otto
Behmer, Otto Theobald Ehrhardt
Behrens, Fred. Ferdinand Francis
Boyce, Harry Arthur
Buchner, Fred. Edward Albert
Clyde, Albert Eugene
Dieden, Frank Xavier
Dittman, George Charles
Elliott, Elizabeth
Fisher, Emil John
Friedgen, Harry Raymond
Fulghum, Charles Clifford
Gilbert, Carl Edward
Harper, Micajah Anderson
Hoch, Charles Frederick
Jacobus, Peter William
Johnson, George Gilmore
Landau, David
Lange, Louis
McGoey, Joseph Aloysius
Mark, George Andrew
Mehrlich, Harry Charles
Menn, Harry George
Mrazek, Leopold Ludwig
Parsons, Edward Charles
Pier, Harry James
Plautz, Henry Frederick
Porges, Otto
Schwarz, Hiram
Smith, Geo. Irving Washington
Storen, Mark Thomas
Van Buren, Evert
Waldron, William Frederick
Wooster, Mortimer Safford

HONORS AND PRIZES.

SENIOR YEAR.

Class Honors:

Arthur Kampman
Emil Joseph Fisher
George Andrew Mark
Harry Raymond Friedgen
Mortimer Safford Wooster

Prizes:

Alma Babb - - - Biroth Microscope.

JUNIOR YEAR.

Class Honors:

Louis H. F. Elich
Charles Augustus Warhanik
Margaret Louise Wright
George Straub
Arthur Wardo Freeman
Frank Siedenberg
Isa Belle Sturges
Maximilian Henry Sobel

Prizes:

Charles Augustus Warhanik - Chemistry Medal
George Straub - - Pharmacy Medal
Margaret Louise Wright - Materia Medica Medal

LIST OF STUDENTS.

Session of 1896-7.

SENIORS.

Allen, Eugene Daniel	Marseilles.
Babb, Alma	Remington, Ind.
Balensiefer, Otto	Joliet.
Behmer, Otto Theobald Ehrhardt	Chicago.
Behrens, Frederick Ferdinand Francis	Chicago.
Bignold, Wilfrid James	Waukegan.
Boudinot, John Elliot	Danville.
Boyce, Harry Arthur	Mt. Vernon, Ind.
Brown, Harvey Waterman	Chicago.
Buchner, Frederick Edward Albert	Chicago.
Burritt, Perley	Chicago.
Clark, Harry Alexander	Carmi.
Clyde, Albert Eugene	Chicago.
Dieden, Frank Xavier	Chicago.
Dittman, George Charles	Chicago.
Doederlein, Rudolph H	Chicago.
Elliott, Elizabeth	Peotone.
Fisher, Emil John	Chicago.
Friedgen, Harry Raymond	Columbus, Ind.
Fulghum, Charles Clifford	Richmond, Ind.
Gilbert, Carl Edward	Blair, Wis.
Gordon, Howard Edward	Hobart, Ind.
Harper, Micajah Anderson	Chesterton, Ind.
Hoch, Charles Frederick	Hamilton, Ind.
Hull, Harry Peck	Chicago.
Jacobus, Peter William	La Crosse, Wis.
Jericho, Frederick William	Mt. Pleasant, Ia.
Johnson, George Gilmore	Norwich, Kan.
Jones, Charles Everett	Greenwood.
Kampman, Arthur	Chicago.
Landau, David	Chicago.
Lange, Louis	Chicago.
Loeffler, Richard August	Chicago.
McGoey, Joseph Aloysius	Chicago.
Mark, George Andrew	Chicago.
Mehrlich, Harry Charles	Black Hawk, Colo.
Menn, Harry George	Quincy.
Mrazek, Leopold Ludwig	Chicago.
Newman, Joseph Henry	Chicago.
Parsons, Edward Charles	Parker, S. Dak.
Phipps, Luther Hansford	Chicago.
Pier, Harry James	Hurley, S. Dak.
Plautz, Henry Frederick	Chicago.
Porges, Otto	Chicago.
Renshaw, Charles Johnson	Normal.
Robin, Luba Julia	Chicago.
Schwarz, Hiram	Chicago.
*Sheppard, Samuel Henry	Jacksonville.
Sherman, Clinton Robert	Lena.
Smith, George Irving Washington	Shelton, Neb.
Storen, Mark Thomas	Rockford.
Sweeney, John Daniel	Chicago.
Van Buren, Evert	Chicago.
Waldron, William Frederick	Chicago.
Wiener, Justin Sumner	Alexandria, S. Dak.
Winne, Charles Walter	Chicago.
Wooster, Mortimer, Safford	Norwalk, Ohio.

*Special Student.

JUNIORS.

Agness, Merle Ardel	Converse, Ind.
Ashmore, Joseph Samuel	Elizabeth.
Atzel, George William	Chicago.
Bauer, Herbert Arthur	Kilbourn City, Wis.
Barclay, James T	Oak Park.
Biese, Carl August	Chattanooga, Tenn.
Bradley, Clarence Henry	West Chicago.
Brenner, Bert Lemon	Rensselaer, Ind.
Brenner, George Frederick	Fowler.
Briel, Louis Mathias	Ottawa.
Bruce, Alexander John	Chicago.
Brown, Frederick Edgar	Sterling.
Bugg, Edward	Austin.
Byerline, Albert Delos	Springfield.
Clancy, Albert Clarence	Chicago.
Conger, Fred Lauren	Galesburg.
Cooke, Lynds Sherman	Momence.
Daley, William Henry	Nashua, Ia.
Davis, Justin	North Chicago.
Dethlefsen, George	Chicago.
Donaberger, Samuel Bricker	Lebanon, Pa.
Eckart, Henry Christian	Chicago.
Elich, Louis Herman Frederick	Chicago.
Elisburg, Louis Albert	Chicago.
Epmeier, Paul	Evansville, Ind.
Fairbrother, Rolla Lon	Wyaconda, Mo.
Farley, James Parks	Eddyville, Ia.
Fina, Peter Frank	Kankakee.
Fleer, Frank William	Quincy.
Flomer, Henry William	Chicago.
Forbrich, Frank Allen	Chicago.
Forch, William Frederick	Chicago.
Freeman, Arthur Wardo	Vermont.
Gakenheimer, Christian Frederick	Baltimore, Md.
Goeppner, George Christopher	Chicago.
Gray, Mrs. Margaret McClintock	Chicago.
Halleran, Edward Milford	Ackley, Ia.
Harris, Andrew Hope	Alexandria, S. Dak.
Hathaway, Charles Edwin	Savanna.
Hellmuth, Joseph Anthony	Chicago.
Henninger, Austin	Chicago.
Hertzberg, Henry	Kankakee.
Holmsted, Axel Sanfred	Chicago.
Hosteny, Joseph Nevi	Chicago.
Houseman, Gilbert	Chicago.
Howard, Arthur Edwin	La Crosse, Wis.
Ishmael, Melvin	Prairie du Chien, Wis.
Kappus, George Jacob	Tiffin, Ohio.
Kepert, Andrew	Hammond, Ind.
King, Clarence Eugene	Chicago.
Kloppenburg, Joseph Robert	Springfield.
Koropp, Ernest August	Mendota.
Kosminsky, Leon	Texarkana, Texas.
Kost, Frank Lyle	Joplin, Mo.
Kremer, Frank	Chicago.
Kucera, Anton, Jr	Hazelhurst, Wis.
Lauber, Bohumil	Chicago.
Linxwiler, Albert	Hillsboro.
Littlefield, Charles Edward	Dallas, Texas.
Lorenz, John Stanley	Chicago.
Love, Charles Reynolds	Savanna.
McLeish, John Nesbit	Portage, Wis.
Maier, Bertram	Chicago.
Matteson, Daniel	Traverse City, Mich.
Meisel, Seymour Ralph	Chicago.
Mense, Clement	Washington, Mo.
Monti, George Joseph	Genoa, Wis.

Moore, Algy Charles ..... Kankakee.
Mosser, William ..... Palatine.
Neubauer, Walter ..... Chicago.
Neverman, Edward Paul Albert ..... Neillsville, Wis.
Newman, Elbert Ray ..... Streator.
Nikola, Joseph ..... Chicago.
Okonski, John Anton ..... Chicago.
Olsen, Egil Thorbjorn ..... Chicago.
Patterson, James Archibald ..... Chicago.
Paus, Charles ..... Chicago.
Preib, Michael John ..... Chicago.
Price, Walter Thomas ..... Honey Grove, Texas.
Psybylski, Adam Stanislaus ..... Chicago.
Rakebrand, Charles ..... Chicago.
Rockwood, Lewis Chester ..... Portage, Wis.
Ruhland, Chas. Theod. Fred. Wm ..... Chicago.
Schrayer, Nathan ..... Chicago.
Schuetz, Ziska Erhart ..... Mendota.
Schultz, Emil Henry ..... Neenah, Wis.
Schultz, Gustav Henry ..... Danville.
Schwuchow, Walter Bernard ..... Chicago.
Seibert, Daniel Peter ..... Ashley.
Siedenburg, Frank ..... Elizabeth.
Smale, William ..... Chicago.
Smith, Brazill Oscar ..... Rockford.
Snyder, William Edward ..... Chicago.
Sobel, Maximilian Henry ..... Chicago.
Steker, John ..... Chicago.
Stokes, George Armitage ..... Kankakee.
Straub, George ..... Waverly, Minn.
Sturges, Mrs. Isa Belle ..... Salt Lake City, Utah.
Swanson, Harold Gideon ..... Chicago.
Swanson, John Adolph ..... Moline.
Swearingen, John Van ..... St. Joseph.
Teetzel, William Herbert ..... Chicago.
Thompson, Charles Oscar ..... Isabel.
Topf, Jacob August ..... Chicago.
Van de Luyster, John ..... Grand Rapids, Mich
Van Matre, David Conley ..... Springfield, Mo.
Von Dandin, Raymond ..... Chicago.
Waca, Frank Reynolds ..... Peoria.
Warhanik, Charles Augustus ..... Chicago.
Watters, Mark Henry ..... Castleton, Vt.
Weigand, Henry Jr. ..... Chicago.
Wells, Fred. Lemuel ..... Chicago.
Werber, Max Frederick ..... Chicago.
Wiedel, Paul Harry ..... Chicago.
Williams, Marco ..... Chicago.
Winburg, Washington William ..... Chicago.
Wistein, James Oliver ..... Chicago.
Woodard, Samuel Franklin ..... Hampton, Neb.
Wright, Margaret Louise ..... Chebanse.
Yates, Herman Arthur ..... Chicago.
Yeo, Norman Hoskin ..... Hallock, Minn.
Zander, Arthur ..... Chicago.
Zerbst, William ..... Peoria.
Zern, John Gideon ..... Good Hope.

1897.

Friday,	October	1, Special Examinations.
Tuesday,	"	5, Opening Exercises; Address, 2:30 P. M.
Wednesday,	"	6, Senior Lectures begin.
Thursday,	"	7, Junior Lectures begin.
Monday,	"	11, Senior Laboratories open.
Tuesday,	"	12, Junior Laboratories open.
Friday,	November	5, Latest date for procuring Tickets.
Thursday,	"	—, Thanksgiving day. No Session.
Saturday,	Dec.	18, Last Session preceding Holidays.

1898.

Monday,	January	3, First Session after Holidays.
Saturday,	February	12, Lincoln's Birthday. No Session.
Tuesday,	"	22, Washington's Birthday. No Session.
Saturday,	April	2, Last Junior Lecture.
Tuesday,	"	5, Final Examination. Junior.
Thursday,	"	7, Final Examination. Junior.
Saturday,	"	9, Final Examination. Junior.
Friday,	"	8, Last Senior Lecture.
Monday,	"	11, Final Examination. Senior.
Tuesday,	"	12, Final Examination. Senior.
Wednesday,	"	13, Final Examination. Senior.
Thursday,	"	21, Thirty-eighth Commencement.
Thursday,	"	28, First Botanical Excursion.
Thursday,	May	5, Second Botanical Excursion.
Thursday,	"	19, Third Botanical Excursion.
Thursday,	June	2, Fourth Botanical Excursion.
Thursday,	"	16, Fifth Botanical Excursion.
Thursday,	July	7, Sixth Botanical Excursion.

NOTE.—Botanical Excursions are free to students and graduates. Those desiring to attend these excursions will, at the close of the term, notify the Actuary, who will, before each excursion, notify them as to the time and place.

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